

Application Number 10/750,316
Amendment responsive to Office Action mailed August 10, 2005

AMENDMENTS TO THE CLAIMS

This listing of claims will replace all prior versions and listings of claims in the application.

Listing of Claims:

Claim 1 (Original) A circuit comprising:

a first multiplexer to select a bias for a microphone when the microphone is electrically coupled to the circuit;

a channel to provide a signal to a speaker, the signal including an alternating current (AC) component and direct current (DC) component, the DC component being approximately equal to a common mode voltage; and

a return path for the microphone and the speaker, the return path including a second multiplexer to select the common mode voltage when the microphone and speaker are coupled to the circuit and to select a ground voltage when the microphone and speaker are not coupled to the circuit.

Claim 2 (Original) The circuit of claim 1, wherein the second multiplexer selects the ground voltage when a data interface is coupled to the circuit and the microphone and speaker are not coupled to the circuit.

Claim 3 (Original) The circuit of claim 1, wherein the first multiplexer selects an OFF setting when the microphone and speaker are not coupled to the circuit, the OFF setting providing no bias.

Claim 4 (Original) The circuit of claim 1, wherein the selected bias defines a voltage sufficient to properly bias the microphone plus the common mode voltage.

Claim 5 (Original) The circuit of claim 1, wherein the first multiplexer is programmable to select the bias from one of a plurality of biases based on whether or not a blocking capacitor is included in the channel.

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Claim 6 (Original) The circuit of claim 1, further comprising a plurality of channels to provide signals to a plurality of speakers, the plurality of signals each including a respective AC component and a respective DC component approximately equal to the common mode voltage, wherein each of the plurality of speakers couple to the return path.

Claim 7 (Currently amended) A circuit comprising:

a first multiplexer programmed to select a bias for a microphone based on whether a blocking capacitor is used with a speaker;

a channel to provide a signal to the speaker, the signal including an alternating current (AC) component and a direct current (DC) component that is approximately equal to a common mode voltage; and

a return path for the microphone and the speaker, the return path including a second multiplexer to select the common mode voltage when the blocking capacitor is not used in the channel and to select a ground voltage when the blocking capacitor is not used in the channel, wherein the selected bias defines a voltage sufficient to properly bias the microphone when the blocking capacitor is used and the selected bias defines the voltage sufficient to properly bias the microphone plus the common mode voltage when the blocking capacitor is not used.

Claim 8 (Original) The circuit of claim 7, wherein the second multiplexer selects the ground voltage when a data interface is coupled to the interface circuit and the microphone and speaker are not coupled to the interface circuit.

Claim 9 (Original) The circuit of claim 7, wherein the first multiplexer selects an OFF setting when the microphone and speaker are not coupled to the interface circuit, the OFF setting providing no bias.

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Claim 10 (Original) A device comprising:

a connector circuit to receive a microphone and one or more speakers, or a data interface; and

a signal conditioning circuit comprising a first multiplexer to select a bias for the microphone when the microphone is coupled to the connector circuit, a channel to provide a signal to the speaker, the signal including an alternating current (AC) component and a direct current (DC) component, the DC component of the signal being approximately equal to a common mode voltage, and a return path for the microphone and the speaker, the return path including a second multiplexer to select the common mode voltage when the microphone and speaker are coupled to the connector circuit and to select a ground voltage when the microphone and speaker are not coupled to the connector circuit.

Claim 11 (Original) The device of claim 10, wherein the second multiplexer selects the ground voltage when data interface is coupled to the connector circuit and the microphone and speaker are not coupled to the connector circuit.

Claim 12 (Original) The device of claim 10, wherein the first multiplexer selects an OFF setting when the microphone and speaker are not coupled to the connector circuit, the OFF setting providing no bias.

Claim 13 (Currently amended) ~~The circuit~~ device of claim 10, wherein the first multiplexer is programmable to select the bias from one of a plurality of biases based on whether or not the connector circuit includes a blocking capacitor for the channel.

Claim 14 (Original) The device of claim 13, wherein the connector circuit includes a blocking capacitor for the channel and the selected bias defines a voltage sufficient to properly bias the microphone.

Claim 15 (Original) The device of claim 13, wherein the connector circuit does not include a blocking capacitor for the channels and the selected bias defines a voltage sufficient to properly bias the microphone plus the common mode voltage.

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Claim 16 (Original) The device of claim 10, further comprising a plurality of channels to provide signals to a plurality of speakers, the plurality of signals each including a respective AC component and a respective DC component, wherein each of the plurality of speakers couple to the return path.

Claim 17 (Currently amended) A system comprising:

a headset including a speaker and a microphone;

a data interface; and

a device including:

a connector circuit to receive either the headset or the data interface, and

a signal conditioning circuit comprising a first multiplexer to select a bias for a microphone when the headset is connected to the connector circuit, a channel to provide a signal to the speaker when the headset is connected to the connector circuit, the signal including an alternating current (AC) component and a direct current (DC) component, the DC component of the signal being approximately equal to a common mode voltage, and a return path, the return path including a second multiplexer to select the common mode voltage when the headset is connected to the connector circuit and to select a ground voltage when the data interface is connected to the connector circuit, wherein the first multiplexer is programmable to select the bias from one of a plurality of biases based on whether or not the connector circuit includes a blocking capacitor for the channel.

Claim 18 (Original) The system of claim 17, wherein the first multiplexer selects an OFF setting when the data interface is connected to the connector circuit, the OFF setting providing no bias.

Claim 19 (Canceled).

Claim 20 (Currently amended) The system of claim 17¹⁹, wherein the connector circuit includes a blocking capacitor for the channel and the selected bias defines a voltage sufficient to properly bias the microphone.

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Claim 21 (Currently amended) The system of claim 1719, wherein the connector circuit does not include a blocking capacitor for the channel and the selected bias defines a voltage sufficient to properly bias the microphone plus the common mode voltage.

Claim 22 (Original) The system of claim 17, further comprising a plurality of channels to provide signals to a plurality of speakers, the plurality of signals each including a respective AC component and a respective DC component, wherein each of the plurality of speakers couple to the return path.

Claim 23 (Currently amended) A method comprising:
identifying between a data mode and an audio mode in a device;
selecting a ground voltage for a return path when the data mode is identified; and
selecting a common mode voltage for the return path when the audio mode is identified;
and
selecting a bias for a microphone when the audio mode is identified, the bias having a voltage value sufficient to bias the microphone plus the common mode voltage.

Claim 24 (Original) The method of claim 23, wherein the common mode voltage defines a voltage value such that substantially no direct current (DC) voltage load is subjected to a speaker in the device, wherein a channel for the speaker does not include a blocking capacitor.

Claim 25 (Canceled).

Claim 26 (Original) The method of claim 23, further comprising selecting no bias for a microphone when the data mode is identified.

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Claim 27 (Original) A circuit comprising:

a microphone electrically coupled to an input amplifier through an input channel;
a first speaker electrically coupled to a first output amplifier through a first output channel;
a second speaker electrically coupled to a second output amplifier through a second output channel;
a first multiplexer to select a bias for the microphone; and
a second multiplexer to select a reference voltage for a return path of the microphone and first and second speakers.

Claim 28 (Currently amended) A circuit comprising:

a channel to provide a signal to a speaker, the signal including an alternating current (AC) component and a direct current (DC) component that is approximately equal to a common mode voltage; and

a return path for the speaker, the return path including a multiplexer to select the common mode voltage when a blocking capacitor is used in the channel and to select a ground voltage when the blocking capacitor is not used in the channel, wherein the multiplexer selects the ground voltage when a data interface is coupled to the circuit and the speaker is not coupled to the circuit.

Claim 29 (Canceled).

Claim 30 (Original) The circuit of claim 28, further comprising a plurality of channels to provide signals to a plurality of speakers, the plurality of signals each including a respective AC component and a respective DC component approximately equal to the common mode voltage, wherein each of the plurality of speakers couple to the return path.